

## A revision of the genus *Achaeearanea* (Araneae: Theridiidae)

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**Abstract** — The genus *Achaeearanea* Strand, 1929 (Theridiidae) is revised. Two genera, *Henziectypus* Archer, 1946 and *Cryptachaea* Archer, 1946, are revived from the synonymy of *Achaeearanea*. *Parasteatoda* Archer, 1946 is recognized as an independent genus. Redefinitions and species lists of four genera, *Achaeearanea*, *Henziectypus*, *Cryptachaea* and *Parasteatoda*, are given. Nine species of *Henziectypus*, 61 species of *Cryptachaea*, and 37 species and a subspecies of *Parasteatoda*, are respectively transferred from *Achaeearanea* to the suitable genera.

**Key words** — taxonomy, *Achaeearanea*, *Henziectypus*, *Cryptachaea*, *Parasteatoda*, Theridiidae, new combination

The genus *Achaeearanea* was established by Strand in 1929 because the genus *Achaea* O. Pickard-Cambridge, 1882 was preoccupied by the genus of Lepidoptera, *Achaea* Hübner, 1823. On the other hand, Archer (1946) established a new genus, *Henziectypus*, and two new subgenera of *Theridion*, *Cryptachaea* and *Parasteatoda*. Shortly after that, he elevated the subgenera to the generic position (Archer 1950). However, these three genera were synonymized with *Achaeearanea* by Levi (1955), and have not been used by any arachnologists. After the revision of the genus *Achaeearanea* made by Levi, many species have been transferred to or described under this genus. At present, 146 species and a subspecies of *Achaeearanea* are known from the world (Platnick 2008).

In my previous papers (Yoshida 1983, 2000, 2001, 2003), I followed the definition of *Achaeearanea* proposed by Levi, and used the generic name for 13 Japanese species. He defined the genus *Achaeearanea* chiefly on the basis of the characteristics of palpal organs: median apophysis (theridiid tegular apophysis devoid of seminal duct) broadly attached to embolus or tegulum, and radix (theridiid tegular apophysis containing seminal duct) absent. In spite of them, type species of *Achaeearanea*, *A. trapezoidalis* (Taczanowski, 1873) widely distributed in South America, is a peculiar species and has many different characteristics compared with most other ones and also Japanese ones of this genus listed in Platnick (2008).

In 2006, Saaristo removed *Parasteatoda* from the synonymy, and redescribed two species, *P. mundula* (L. Koch, 1872) and *P. tepidariorum* (C. L. Koch, 1841). Two subspecies of them, *P. mundula papuana* (Chrysanthus, 1963) and *P. tepidariorum australis* (Thorell, 1895), were also listed by Platnick (2008). However, the genus *Parasteatoda* has not been recognized in general.

In this paper, I also recognize *Parasteatoda* as an

independent genus and newly revive two genera, *Cryptachaea* and *Henziectypus*, from the synonymy of *Achaeearanea*. I consider that the differences among the four genera correspond to the level usually recognized between the genera in the family Theridiidae. Redefinitions and lists of the species of four genera are given below. According to my examination, only three species belong to *Achaeearanea*, and most of all the species described under *Achaeearanea* are transferred to the other genera, *Henziectypus*, *Cryptachaea* and *Parasteatoda*. Remaining species are excluded in this paper, because at present I can't determine their generic status.

Key to the genera, *Achaeearanea*, *Henziectypus*, *Cryptachaea* and *Parasteatoda*

- 1a. Duct of female internal genitalia thick near the opening, thin and coiled near spherical seminal receptacle; paracymbium of male palpus hooked; embolus narrow and very long, supported by cymbium .....*Achaeearanea*
- 1b. Duct of female internal genitalia not coiled near seminal receptacle; paracymbium of male palpus hooded; embolus not so long and not supported by cymbium .....2
- 2a. Epigynum without posterior lobe, depression distinct; cymbium of male palpus not extend beyond the alveolus; tegulum not large and depressed; subtegulum large .....*Parasteatoda*
- 2b. Epigynum usually with posterior lobe, depression indistinct; cymbium of male palpus extend beyond the alveolus; tegulum large and spherical; subtegulum shallow .....3
- 3a. Median apophysis of male palpus broadly attached to tegulum; cymbium distally with a horn projection .....*Henziectypus*
- 3b. Median apophysis of male palpus attached to embolus;

cymbium without horn projection .....*Cryptachaea*

### ***Achaearana* Strand, 1929**

*Achaea* O. Pickard-Cambridge 1882, p. 428, preoccupied by *Achaea* Hübner, 1823 (Lepidoptera); Archer 1950, p. 17.

*Achaearana* Strand 1929, p. 11, new name for *Achaea* O. Pickard-Cambridge, 1882.

Carapace oval. Abdomen suboval with a posterior large tip. Female genitalia: epigynum with a depression and two openings; duct thick near the opening, thin and coiled near spherical seminal receptacle. Male palpus: cymbium with large distal projections deeply divided into two projections; paracymbium hooked, on the lateral edge of cymbium; embolus narrow and very long, supported by cymbium; conductor laterally projecting; median apophysis attached to embolus and forming one sclerite with it; tegulum large and spherical; subtegulum small.

General appearances and genital organs of three species belonging to this genus were illustrated by Levi (1955, figs. 7–13; 1963, figs. 1–6).

**Diagnosis.** This genus is easily distinguished from *Henziectypus*, *Cryptachaea* and *Parasteatoda* by the cymbium of male palpus with hooked paracymbium, the embolus narrow and very long, supported by cymbium, and the duct of female internal genitalia thin and coiled near seminal receptacle. This genus is similar to *Chrysso* in the shape of the abdomen, but is distinguished from the latter by genital organs and relatively short legs.

**Type species.** *Achaea insignis* O. Pickard-Cambridge, 1882 (= *Argyrodes trapezoidalis* Taczanowski, 1873).

**Species included.** As far as I know, only three species, *Achaearana hieroglyphia* (Mello-Leitão, 1940), *A. trapezoidalis* (Taczanowski, 1873) and *A. tingo* Levi, 1963, are confirmed to belong to this genus. Most of all the species of *Achaearana* listed by Platnick (2008) should be transferred to the different genera.

**Distribution.** Central and South America (Levi 1955, 1959, 1963).

### ***Henziectypus* Archer, 1946**

*Henziectypus* Archer 1946, p. 51; Archer 1950, p. 16.

Carapace oval. Abdomen nearly spherical, usually higher than long. Female genitalia: epigynum usually with posterior lobe and without depression; two small openings present anterior to lobe; duct very short; seminal receptacles nearly spherical to bean-shape. Male palpus: cymbium distally with a horn projection; paracymbium hooded, basally on a horn projection of cymbium; embolus and conductor short; median apophysis small, broadly attached to tegulum; tegulum nearly spherical; subtegulum shallow and ring-like, usually invisible from ventral side.

General appearances and genital organs of ten species

belonging to this genus were illustrated by Levi (1955, figs. 14–38; 1959, figs. 1–23).

**Diagnosis.** This genus most resembles *Cryptachaea*, but is distinguished from the latter by the median apophysis broadly attached to tegulum. Discriminating characteristics from *Achaearana* and *Parasteatoda* are given under the descriptions of them.

**Type species.** *Theridion globosum* Hentz, 1850.

**Species included.** Ten species are known from North and Central America, and nine of them are newly transferred to this genus.

*Henziectypus annus* (Levi, 1959), *H. apex* (Levi, 1959), *H. conjunctus* (Gertsch & Mulaik, 1936), *H. florendidus* (Levi, 1959), *H. florens* (O. Pickard-Cambridge, 1886), *H. globosus* (Hentz, 1850), *H. hermosillo* (Levi, 1959), *H. serax* (Levi, 1959), *H. schullei* (Gertsch & Mulaik, 1936) and *H. turquino* (Levi, 1959). Other than *H. globosus* (Hentz, 1850), **all new combination.**

**Distribution.** North and Central America (Levi 1955, 1959, 1963).

### ***Cryptachaea* Archer, 1946**

[Japanese name: Iwama-himegumo zoku]

*Cryptachaea* Archer 1946, p. 36, established as a subgenus of *Theridion*; Archer 1950, p. 14, elevated to generic position.

Carapace oval. Abdomen nearly spherical usually with a small posterior projection, longer than high, sometimes higher than long. Female genitalia: epigynum sometimes with posterior lobe; depression indistinct; two small openings present; duct short; seminal receptacles nearly spherical to bean shaped. Male palpus: cymbium extend beyond the alveolus; paracymbium hooded; embolus usually short except for *C. porteri*, *C. serenoae* etc.; conductor short; median apophysis attached to embolus with which it forms one sclerite; tegulum large and spherical; subtegulum shallow and ring-like.

General appearances and genital organs of many species belonging to this genus were illustrated by Levi (1955, figs. 39–68, 71–82; 1959, figs. 24–44, 53–56, 61–69; 1963, figs. 7–114) and Buckup & Marques (1991, figs. 1–16).

**Diagnosis.** This genus resembles *Henziectypus* and *Parasteatoda*, but is distinguished from *Henziectypus* by median apophysis attached to embolus with which it forms one sclerite, from *Parasteatoda* by cymbium extend beyond alveolus, tegulum spherical, and subtegulum shallow and ring-like.

Saaristo (2006) established a new genus *Spinembolia* based on a monotype, *S. clabna* (Roberts, 1978) described from the Seychelles. Structures of male palpus and epigynum of *S. clabna* (cf. Saaristo 2006, figs. 81–82) resembles those of *Cryptachaea*. Differences between *Spinembolia* and *Cryptachaea* are not clear.

**Type species.** *Theridion catapetraeum* Gertsch & Archer, 1942 (= *Theridium porteri* Banks, 1896).

*Species included.* Sixty-six species are known from the world and 64 of them are newly transferred to this genus. This genus chiefly occurs in America, so a completely revision of this genus was not done.

*Cryptachaea acoreensis* (Berland, 1932), *C. alacris* (Keyserling, 1884), *C. altiventer* (Keyserling, 1884), *C. ambara* (Levi, 1963), *C. analista* (Levi, 1963), *C. anastema* (Levi, 1963), *C. azteca* (Chamberlin & Ivie, 1936), *C. banosensis* (Levi, 1963), *C. barra* (Levi, 1963), *C. bellula* (Keyserling, 1891), *C. caliensis* (Levi, 1963), *C. canionis* (Chamberlin & Gertsch, 1929), *C. caqueza* (Levi, 1963), *C. chilensis* (Levi, 1963), *C. chiricahua* (Levi, 1955), *C. cinnabarina* (Levi, 1963), *C. diamantina* (Levi, 1963), *C. dromedariformis* (Roewer, 1942), *C. eramus* (Levi, 1963), *C. fresno* (Levi, 1955), *C. gigantea* (Keyserling, 1884), *C. hirta* (Taczanowski, 1873), *C. inops* (Levi, 1963), *C. insulsa* (Gertsch & Mulaik, 1936), *C. isana* (Levi, 1963), *C. jequiritiba* (Levi, 1963), *C. kaspi* (Levi, 1963), *C. koepcke* (Levi, 1963), *C. lotta* (Levi, 1963), *C. manzanillo* (Levi, 1959), *C. maraca* (Buckup & Marques, 1991), *C. maxima* (Keyserling, 1891), *C. meraukensis* (Chrysanthus, 1963), *C. migrans* (Keyserling, 1884), *C. milagro* (Levi, 1963), *C. nayaritensis* (Levi, 1959), *C. oblivia* (O. Pickard-Cambridge, 1896), *C. orana* (Levi, 1963), *C. pallipera* (Levi, 1963), *C. parana* (Levi, 1963), *C. passiva* (Keyserling, 1891), *C. pilaton* (Levi, 1963), *C. pinguis* (Keyserling, 1886), *C. porteri* (Banks, 1896), *C. projectivulva* (Yoshida, 2001), *C. pura* (O. Pickard-Cambridge, 1894), *C. pusillana* (Roewer, 1942), *C. pydanieli* (Buckup & Marques, 1991), *C. rafaeli* (Buckup & Marques, 1991), *C. rapa* (Levi, 1963), *C. rioensis* (Levi, 1963), *C. riparia* (Blackwall, 1834), *C. rostra* (Zhu & Zhang, 1992), *C. rostrata* (O. Pickard-Cambridge, 1896), *C. rupicola* (Emerton, 1882), *C. schneirlai* (Levi, 1959), *C. schraderorum* (Levi, 1959), *C. serenoae* (Gertsch & Archer, 1942), *C. sicki* (Levi, 1963), *C. taeniata* (Keyserling, 1884), *C. towarensis* (Levi, 1963), *C. trinidensis* (Levi, 1959), *C. uviana* (Levi, 1963), *C. veruculata* (Urquhart, 1886), *C. vivida* (Keyserling, 1891) and *C. zonensis* (Levi, 1959). Other than *C. porteri* and *C. serenoae*, **all new combination**.

*Distribution.* Cosmopolitan. Chiefly distributed in America (Buckup & Marques 1991; Levi 1955, 1959, 1963).

### ***Parasteatoda* Archer, 1946**

[Japanese name: O-himegumo zoku]

*Parasteatoda* Archer 1946, p. 38, established as a subgenus of *Theridion*; Archer 1950, p. 13, elevated to generic level; Saaristo, 2006, p. 69.

Basal color grayish brown to blackish brown, some are bright orange. Abdomen with broadly and longitudinal cardiac pattern, and some transverse flecks. Carapace oval. Abdomen nearly spherical usually with a small posterior projection. Female genitalia: epigynum with large

depression; two openings in both side of the depression; duct relatively longer than that of *Henziectypus* and *Cryptachaea*; seminal receptacles nearly spherical. Male palpus: cymbium not extend beyond the alveolus; paracymbium hooded; embolus usually long; conductor short, supporting as embolus guide; median apophysis attached to embolus with which it forms one sclerite; tegulum relatively smaller and subtegulum larger than those of *Henziectypus* and *Cryptachaea*.

General appearances and genital organs of many species belonging to this genus were illustrated by Levi (1955, figs. 69–70, 83–84; 1959, figs. 53, 57–60), Chrysanthus (1963, figs. 76–100; 1975, figs. 168–173), Levi et al. (1982, figs. 2–25), Zhu (1998, figs. 44–46, 50–51, 53–59, 61–64, 66–69) and Yoshida (2000, figs. 4–50; 2003, figs. 250–296).

*Diagnosis.* This genus resembles *Henziectypus* and *Cryptachaea*, but is distinguishable from them by cymbium of male palpus not extend beyond the alveolus, and in addition from *Henziectypus* by median apophysis attached to embolus, from *Cryptachaea* by smaller and depressed tegulum, and larger subtegulum.

*Type species.* *Theridium tepidariorum* C. L. Koch, 1841.

*Species included.* Forty species and three subspecies are known from the world, chiefly distributed in East to Southeast Asia, and 37 species and a subspecies are newly transferred to this genus.

*Parasteatoda angulithorax* (Bösenberg & Strand, 1906), *P. asiatica* (Bösenberg & Strand, 1906), *P. brookesiana* (Barrión & Litsinger, 1995), *P. campanulata* (Chen, 1993), *P. camura* (Simon, 1877), *P. celsadomina* (Zhu, 1998), *P. cingulata* (Zhu, 1998), *P. culicivora* (Bösenberg & Strand, 1906), *P. daliensis* (Zhu, 1998), *P. decorata* (L. Koch, 1867), *P. ducta* (Zhu, 1998), *P. ferrumequina* (Bösenberg & Strand, 1906), *P. galeiforma* (Zhu, Zhang & Xu, 1991), *P. gui* (Zhu, 1998), *P. hammeni* (Chrysanthus, 1963), *P. japonica* (Bösenberg & Strand, 1906), *P. jinghongensis* (Zhu, 1998), *P. kaindi* (Levi, Lubin & Robinson, 1982), *P. kompirensis* (Bösenberg & Strand, 1906), *P. lanyuensis* (Yoshida, Tso & Severinghaus, 2000), *P. longiducta* (Zhu, 1998), *P. lunata* (Clerck, 1757), *P. lunata serrata* (Franganillo, 1930), *P. mundula* (L. Koch, 1872), *P. mundula papuana* (Chrysanthus, 1963), *P. oculiprominens* (S. Saito, 1939), *P. oxymaculata* (Zhu, 1998), *P. polygramma* (Kulczyński, 1911), *P. quadrimaculata* (Yoshida, Tso & Severinghaus, 2000), *P. ryukyu* (Yoshida, 2000), *P. simulans* (Thorel, 1875), *P. songi* (Zhu, 1998), *P. subtabulata* (Zhu, 1998), *P. subvexa* (Zhu, 1998), *P. tabulata* (Levi, 1980), *P. transipora* (Zhu & Zhang, 1992), *P. tepidariorum* (C. L. Koch, 1841), *P. tepidariorum australis* (Thorell, 1895), *P. tessellata* (Keyserling, 1884), *P. triangula* (Yoshida, 1993), *P. valoka* (Chrysanthus, 1975), *P. vervoorti* (Chrysanthus, 1975) and *P. wau* (Levi, Lubin & Robinson, 1982). Other than *P. camura*, *P. mundula*, *P. mundula papuana*, *P. tepidariorum* and *P. tepidariorum australis*, **all new combination**.

*Distribution.* Cosmopolitan. Chiefly distributed in East

to Southeast Asia (Chrysanthus 1963, 1975; Levi et al. 1982; Yoshida 2000, 2003; Zhu 1998).

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Received February 28, 2008 / Accepted April 25, 2008